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ABSTRACT

This paper describes an investigation of a mathematics and science focused summer program for urban minority secondary school students (N=103). The goal of the program was to enhance students' ability to succeed in high school science and mathematics courses. Situated on a college campus, the program worked with participants during four weeks of instruction in mathematics and science classes. The students had a head start on the upcoming year, reinforced their mastery of material and the opportunity to gain confidence in smaller classes where they can be successful. Concurrently with instruction to the high school students, the teachers received three hours per week of professional development. Results of pre- and posttests indicated that students' mathematics and science scores increased significantly. Teachers, participants, and parents had positive reactions to the experience. Implications for policy and practice are discussed. (Contains 12 references.) (Author/YDS)

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Running Head: PARTNERSHIP IN EDUCATION

ED 468 388

Partnership in Education: School and Community Organizations Working Together to Enhance Minority Students Ability to Succeed in High School Science and Mathematics

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Jefferson County Public Schools

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Abstract

An investigation of a mathematics and science focused summer program for urban minority secondary school students (N = 103). The goal of the program was to enhance student's ability to succeed in high school science and mathematics courses. Situated on a college campus, the program worked with participants during four weeks of instruction in mathematics and science classes. The students had a head start on the upcoming year, reinforced their mastery of material and the opportunity to gain confidence in smaller classes where they can be successful. Concurrently with instruction to the high school students, the teachers received three hours per week of professional development. Results of pre- and posttests indicated that students' mathematics and science scores increased significantly. Teachers, participants, and parents had positive reactions to the experience. Implications for policy and practice are discussed.

Keywords: Summer Programs, Academic Achievement, Secondary Education, Urban Education, African Americans, Inner City, Professional Development

Partnership in Education: School and Community Organizations Working Together to Enhance Minority Students Ability to Succeed in High School Science and Mathematics

The creation of partnerships in education is a critical theme in the nation. Seeley (1985) proposed the creation of partnerships that combines state educational goals with private local companies, neighborhoods and communities' interest in developing the human capital of the future. The involvement of the business community and neighborhoods are essential in any school reform effort. Businesses are interested in the availability of a skilled workforce that schools might provide. Schools need to engage in collaboration to broaden the social services to meet student needs, which in turn, are prerequisites for achievement. Schools must constantly develop partnerships to create environments, both inside and outside of the school, which enables engagement in learning.

According to Murphy (1991), efforts should be made to expand the "school community," to unite parents, professional educators, businesses, universities, foundations, and the general populace into a collective force dedicated to the improvement of schooling for all children. George Mason University's (Virginia) successful Early Identification Program is an example. It includes alliances with three public school districts to foster early, consistent intervention, and to encourage and motivate at-risk minority students to complete a college preparatory curriculum and enroll in colleges (Renick & Cadenas, 1994).

In a partnership among a school district, a local university, and a community-based organization, a summer program is offered to all Jefferson County high school students who have completed the eighth, ninth, tenth or eleventh grade. This program was

originally designed to enhance gifted minority students abilities to succeed in their high school mathematics and science courses. Located on the campus of the University of Louisville, the program serves more than 100 students. The Lincoln Foundation Summer Math and Science Program extended over four weeks and included two 90-minute classes Monday-Friday. Students having difficulty in their classes were offered one hour tutoring sessions following regular classes.

The Lincoln Foundation recruited and hired 8 subject area teachers to provide instruction to the students. The school system provided 4 resource teachers who provided the professional development and curriculum design. The objective of the program was to enhance participant's ability to succeed in their high school mathematics and science courses. The student-teacher ratio was approximately 13:1.

The Lincoln Foundation program had two basic components: mathematics and science instruction for students and professional development for the participating teachers. The curriculum was designed to match state mandated educational objectives and to foster performance tasks and real life applications of science and mathematics. The ultimate objective was to provide instruction that would prepare students for high school mathematics and science courses at all levels. For example, the Algebra component provides students with experience using manipulatives. Students were required to use graphing calculators and graph and analyze original data. The Science courses emphasized inquiry based and activity-based instruction.

Professional development is a key element of the program. Teachers received 24 hours of professional development during the course of the program. The professional development was about 12 hours prior to the program and three hours per week during

the program. Four resource teachers prepared and implemented the professional development for the twelve core subject teachers. Three afternoons during the four-week program, resource teachers met with content teachers for one hour in order to clarify lessons and modify the instruction for the following day. The resource teachers demonstrated and modeled hands-on methods of classroom instruction. The teachers were then expected to implement these teaching methods with their students in the summer program. It is assumed that the teachers will continue to provide hands-on instruction during the regular school year to their students.

To be meaningful, this evaluation must be viewed in the general context of research related to (a) minority representation in science and mathematics and (b) educational summer programs. Minority students are underrepresented in science and mathematics courses at every level from elementary to graduate school (Oakes, 1990). Lack of preparation in science and mathematics among under-represented minority groups in middle and high school ultimately limits college and career choices latter in life (Clark, 1999). Minority students make up the most rapidly growing portion of our school-aged population, but are the population who are most left out of science and mathematics programs and course offerings. There is a need for documentation of successful interventions that enhance the science and mathematics performance of minority youth.

The dilemma of how to increase the flow of minority students into the scientific pipeline has been well documented (Culatta & Gibbons, 1992, Stevens, 1993). To date, millions of dollars have been spent on government programs targeted at improving

minority representation in science and mathematics, but the impact of these programs is questionable.

In a study by Culatta and Gibbons (1992), seven explanations are provided for the weakness of existing programs (a) programs were run with little oversight or assessment; funding did not depend on results, (b) there was little real commitment from the top or from most faculty, (c) programs had vague or unrealistic goals, (d) funding was inconsistent, (e) programs ignored subtle psychological issues such as low expectations on the part of teachers, (f) colleges recruited unprepared minority students and then provided little support, (g) programs targeted college- aged students or higher, instead of going to the root of the problem in elementary, middle and high schools.

Public and private agencies have invested billions of dollars in the past twenty years on a wide range of summer programs. Until recently, the majority of school summer programs offered to students were designed to provide a pressure-free, noncompetitive environment in which young people could explore a particular area of interest in depth (Ware, 1990).

Over the last thirty years access to higher education has expanded markedly. Remediation and support programs, including summer programs, have grown in response to the needs of students who need help in gaining an equal footing with other students. Every program should begin by developing a mission statement and goals that serve as the foundation of any evaluation, recognizing that it is not usually possible to offer all activities and to serve all populations (Kezar, 2000).

The summer program can allow students to experiment in specific areas of knowledge and to sample college life. Program selection requires the identification of

what the student needs and what programs are available in his/her areas of interest. Important variables to consider include: length, age range, program requirements, group size, individual attention, leadership, depth of staff experience, credit or noncredit courses, facilities and equipment, schedule, recreation, social activities, safety, and programs abroad (Ware, 1990).

Currently, there has been a movement towards mandatory summer program designed for low performing students (Pipho, 1999). Summer programs are designed to reduce summer learning losses, improve reading and math skills, increase graduation rates, and reduce the incidence of teen parenthood. Reports that programs succeed in slowing, and in many cases stopping, summer learning losses of at-risk students (Mikulecky, 1990).

The problem is that for summer programs there is a lack of research showing that such programs work. Some critics of summer school programs say that most programs are focused on remedial lessons instead of enrichment (Mathews, 2000). In light of the literature review and the needs of the school district under investigation, this evaluation was designed to answer the following questions:

1) What are the characteristics of the students participating in the program?

2) What are the teacher's affective responses to different components of the program?

3) What are the students' perceptions to the different components of the program?

4) What are the parents' perceptions to the different aspects of the program?

5) What is the impact of the summer program on student's content knowledge in science and mathematics?

Method

Participants

One hundred and twenty three students were initially enrolled in the program. One hundred and three students from 19 schools across the county completed the program. 72% of the students were enrolled in Male, Manual, Central and Ballard high schools. Most of the students were minority (86%). In terms of gender, the participants were equally distributed. Table 1 provides additional information about the participants.

Table 1

Student Profile of the Participants in the High School Math/Science Program

Variable	Frequency	Percent
Gender		
Female	51	52%
Male	47	48%
Race		
African American	73	74%
White	14	14%
Other	11	12%
Grade		
9th	63	62%
10th	23	22%
11th	13	12%
12th	1	1%
Math Class		
Algebra	84	82%
Geometry	19	18%
Science Class		
Biology	74	72%
Physical	29	28%

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An analysis of the zip code areas indicated that the student came from diverse regions of the district. Approximately one third of program participants came from a low socio-economic region of the county commonly called the West End (40210, 40211, and 40212). Table 2 shows the different zip codes of the students. A graphical representation of program location and zip codes of participating students can be found on Appendix A.

Table 2

Zip Codes of the Participants in the High School Math/Science Program (N = 103)

Zip Code	Frequency	Percent
40059	2	1.9
40203	1	1.0
40205	1	1.0
40206	1	1.0
40207	1	1.0
40208	2	1.9
40210	6	5.8
40211	19	18.4
40212	8	7.8
40213	1	1.0
40215	4	3.9
40216	5	4.9
40217	1	1.0
40218	6	5.8
40219	8	7.8
40220	4	3.9
40222	3	2.9
40223	3	2.9
40228	2	1.9
40241	5	4.9
40242	4	3.9
40243	1	1.0
40245	2	1.9
40258	2	1.9
40272	4	3.9
40291	3	2.9
40299	2	1.9
47130	1	1.0
60544	1	1.0

Data Collection

Content Knowledge Pre and Posttest. Pre and posttests were developed to assess the impact of the program on student's content knowledge. The teachers constructed two content area tests: (a) mathematics and (b) science. The teachers established face validity of the instrument.

Teacher Surveys. A survey was developed to assess the affective responses of the teachers. The teachers were asked in the following areas: (a) assessment of professional development, (b) assessment of personal instruction strategies, and (c) overall program assessment. The instrument also allowed the teachers to express their perceptions of the strengths and weaknesses of the summer program. For example, teachers were asked to respond to the following question: "Please describe what you perceive to be the strengths of the Lincoln Foundation Summer Program."

Student Surveys. A survey was developed to assess the affective responses of the students. The students were asked in the following areas: (a) teacher evaluation and (b) course evaluation. The instrument also allowed the students to express their perceptions of the strengths and weaknesses of the mathematics and science summer program. For example, students were asked to respond to the following question: "Please make any other comments or suggestions regarding the instructor."

Parent Surveys. A survey was developed to assess the affective responses of the parents. The parents were asked in multiple areas, especially in relationship to overall program assessment. The instrument also allowed the parents to express their perceptions of the strengths and weaknesses of the Lincoln Foundation mathematics and science summer program. In this regard, parents were asked to provide comments.

Results

Process Evaluation:

What are the teacher's affective responses to the program?

The average rating for professional development, personal instructional strategies, and overall assessment of the program were very positive. Teachers indicated that they were very satisfied with the professional development offered during the program. Most teachers agreed that (a) the content was organized to provide opportunities to learn new teaching strategies, (b) materials were adequately covered for understanding, (c) there was an opportunity for collaborative learning, (d) there was an opportunity to try instructional strategies, and (e) they felt adequately prepared to deliver instruction to the students. Table 3 details the results from the Professional Development portion of the survey.

Table 4 details the teachers assessment of the personal instructional strategies used during the program. The instructional strategy most often used was the activity-based approach to presenting lessons ($\underline{M} = 4.88$). Cooperative learning groups, use of manipulative, small group work, and teacher lecture were also used. Individual student projects were the least used instructional technique.

The means for the overall assessment of the program was high across all categories. The highest scores were for curriculum, program length, professional development and instructional support ($\underline{M} = 4.88$). The lowest scores were on the item related to student selection and teaching supplies. More detailed information is provided in table 5.

Table 3

Survey Results of the Teachers Assessment of Professional Development in the High School Math/Science Program (N = 8)

Item	M
1. Content was organized to provide opportunities to learn new teaching strategies	4.75
2. Materials were adequately covered for understanding	4.63
3. There was an opportunity for collaborative learning	4.88
4. There was opportunity to try instructional strategies	4.88
5. I felt adequately prepared to deliver instruction to the students	4.88

Note:

Five-point Likert-type scales were used (1 = Disagree, 5 = Agree).

The response rate was 100%. The reliability coefficient was .61.

Table 4

Survey Results of the Teachers Assessment of Personal Instruction Strategies in the High School Math/Science Program (N = 8)

Item	M
1. Activity-based approach to presenting lessons	4.88
2. Cooperative learning groups	4.50
3. Use of manipulatives	4.38
4. Small group work	4.50
5. Board work	4.25
6. Lecture	4.25
7. Projects	3.88

Note:

Five-point Likert-type scales were used (1 = Did not implement, 5 = Regularly).

The response rate was 100%. The reliability coefficient was .80.

Table 5

Survey Results of the Teachers Overall Program Assessment in the High School Math/Science Program (N = 8)

Item	M
1. Student selection	4.63
2. Curriculum	4.88
3. Class size	4.75
4. Length of the program (number of days)	4.88
5. Teaching supplies	4.63
6. Administrative support	4.38
7. Professional development	4.88
8. Instructional support	4.88
9. Site appropriateness	4.75

Note:

Five-point Likert-type scales were used (1 = Poor, 5 = Excellent).

The response rate was 100%. The reliability coefficient was .76.

Teachers' Perceptions about the Lincoln Foundation Summer Program

The document analysis was based on the faculty reports. The faculty provided both strengths and weaknesses of the program. The document analysis revealed that the strengths of the Lincoln Foundation Summer Program included the following areas:

- Teaching style
- Curriculum
- Class size
- Program site
- Leadership
- Hands-on activities
- Regular PD
- Guest speakers

Based on the perceptions of the teachers, the document analysis showed that the weaknesses of the Lincoln Foundation Summer Program included the following dimensions:

- Get more sophomores and juniors involved in this program
- Students would benefit by receiving service hours to apply towards graduation requirements
- Student attendance

Process Evaluation:

What are the students' affective responses to the program?

The average rating for the students' evaluation of the teachers was very positive. Most students agreed on the 12 items of the course evaluation. The item with the highest rating was "instructor is consistent and fair in grading." The only area that showed a lower agreement rate relative to the other areas was availability of the instructor to outside classroom consultation. Table 6 details the results from the teacher evaluation portion of the students' survey.

Table 6

Survey Results of the Participants Evaluation in the High School Math/Science Program (N = 47)

Item	M
1. Makes course goals known and endeavors to achieve them	3.23
2. Selection of materials is suited to objectives of the course	3.42
3. Class presentations are organized and clearly presented	3.31
4. Accepts questions readily and answers clearly	3.40
5. Appears sensitive to student's feelings and problems	3.39
6. Assignments are appropriate for objectives of the course	3.38
7. Assignments are appropriate for credits received	3.35
8. Is available for consultation outside of the class	2.83
9. Shows interest and enthusiasm for course	3.23
10. Instructor is flexible	3.19
11. Instructor is consistent and fair in grading	3.56
12. Overall rating of this instructor as a teacher	3.54

Note:

Four-point Likert-type scales were used (0 = Poor, 4 = Excellent).

The response rate was 100%. A 50% random sample was selected for analysis purposes.

Process Evaluation:

What are the parents' affective responses to the program?

The average rating for the parents' evaluation was very positive. Most parents agreed on the nine items of the course evaluation. The items with the highest rating were "the camp provided a positive learning environment for my child" and "the quality of education provided by this program was excellent." Table 7 details the results of the parents' evaluation.

Table 7

Survey Results of the Parents' Evaluation in the High School Mathematics/Science Program (N = 29)

Item	M
1. I believe my child was encouraged to do his/her best work	4.5
2. The camp provided a positive learning environment for my child	4.8
3. The work my child did in this camp was important	4.7
4. I believe my child will be better prepared for high school mathematics	4.4
5. The instructional methods used were very effective for my child	4.7
6. My child's interest in science has increased	4.2
7. My child's interest in mathematics has increased	4.2
8. The quality of education provided by this program was excellent	4.8

Note:

Five-point Likert-type scales were used (1 = Disagree, 5 = Agree).

The response rate was approximately 56.3%. A random sample was selected for analysis purposes.

Product Evaluation

What was the impact of the summer program on participating student's content knowledge in science and mathematics?

Statistical analysis of the pre and posttest measures using the paired-sample t-test procedure indicated students gained knowledge in mathematics and science the subject areas tested in this evaluation. The one hundred and three students enrolled in mathematics and science increased their score by more than 40% after participating in the program. Additional information is included in Table 8. These results indicate the Lincoln Foundation had a positive effect on the participant's knowledge of mathematics and science subject areas. No statistically significant difference was found in the gender sub-group analysis on mathematics [t (80)= .01, p > .05] and on science [t (96)= 1.24, p > .05]. Attendance during the 20 instructional days was approximately 93.7%.

Table 8

Comparison Between Pretest and Posttest Scores For Mathematics and Science Subject Areas for Program Participants

Subject	N	Mean Pretest	Mean Posttest	Percent Gain	t value
Math	100	35.92	61.69	41.8%	11.5*
Science	99	46.27	77.13	40.0%	12.3*

p < .001

Discussion

The Lincoln Foundation has been offering instruction to students for over twenty years. The original Lincoln Foundation programs were clearly designed to fill a niche in the community. This niche was to assist in the academic development of minority students who were promising in math and science. The demographic characteristics of the 2002 participants illustrate that the program is continuing to serve mostly ninth graders on algebra and biology courses. The program served students living on multiple areas of the county, especially the region known as the West End.

The Lincoln Foundation Math and Science Program provided participants with science and mathematics instruction. The curricular methods involved were up to date and included activity-based learning and small group work. In this sense, activities were designed to foster enthusiasm and interest in the participants. This is a positive finding in light of research that suggests that summer programs often fail because of reliance on traditional teaching strategies and teacher centered instruction (Pipho, 1999).

The attendance above 90% was also a good measure of the enthusiasm of the participating students. The rate of attendance was very high for a summer optional program. This may be due to the parent involvement in encouraging students to attend. Parents were asked to sign a form stating that they will support their students. Parents were also sent attendance records of their children throughout the program. Perfect attendance awards were given out at the conclusion of the program.

The main outcome of the program was gains in content knowledge both mathematics and science subject areas. In addition, teachers rated high their satisfaction with the professional development activities of the program, use of innovative teaching

strategies, and overall assessment of the program. Student and parent evaluation also showed positive levels of satisfaction with the program. Due to the characteristics of the program, no control group was included in the research design. In this regard, the findings might be explained due to the instructional program and natural maturation (i.e., threat to internal validity).

Recommendations for Practice and for Future Research

Practical recommendations include starting the recruitment and advertisement into the program late March or early April. Also, continue exploring the possibility of offering the Math and Science Program for high school credit. In terms of location, start soon the process of securing labs for science courses as well as 10 to 12 classrooms on one floor and in one building if possible.

A key objective of the program is to have impact on student achievement in high school mathematics and science. Questions about sustainability of the gains remain unanswered. An additional objective of the professional development is that the teachers transfer the knowledge and experiences gained during the summer to their own classroom. An additional study could examine implementation of strategies learned during the professional development sessions of the Lincoln Foundation program.

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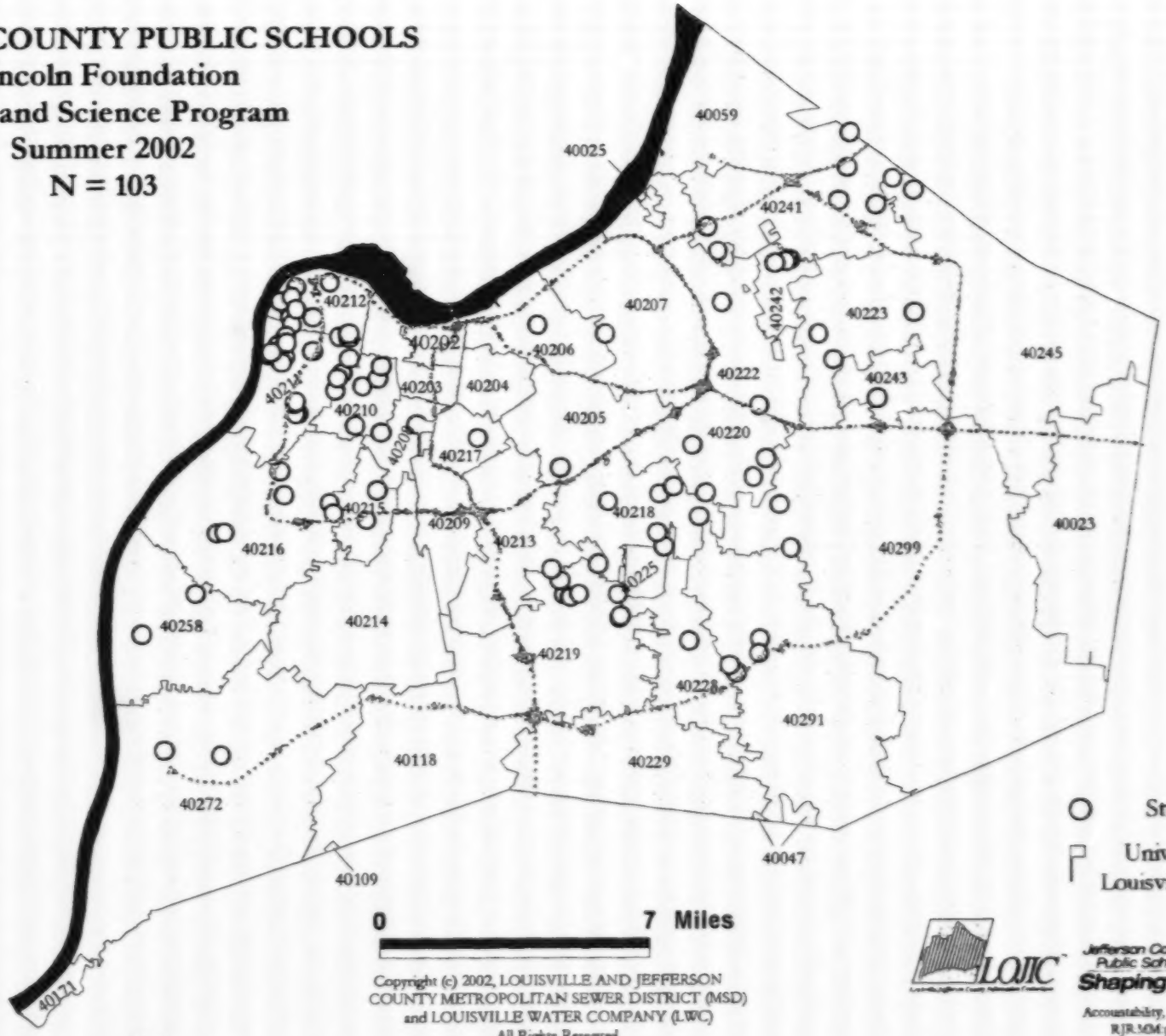
Appendix

JEFFERSON COUNTY PUBLIC SCHOOLS
Lincoln Foundation
Math and Science Program
Summer 2002
N = 103



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Jefferson County Public Schools
Shaping the Future

Accountability, Research & Planning
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THE LINCOLN FOUNDATION
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Lincoln Foundation Summer Math & Science Program
Program Commitment Form

1. I will attend the Math and Science Program for the **entire** 4 weeks.

2. I will be in class on time. I understand that two unexcused tardies will result in a phone call to my parents.

3. I will inform instructor (in advance if possible) of class absences. I understand that two absences, excused and unexcused, will result in automatic **dismissal** from the program.

4. I understand that I must have a note from my parent/guardian with a phone number in order to be dismissed from class early. If I do not have a note that allows me to leave class, my parent must personally come to the class to pick me up.

5. I will attend tutorial sessions (each day from 12:00 to 1:00 (or from 4:00 to 5:00) as soon as material becomes unclear to me.

6. I understand that grades will be determined by participation, following instructions, and completion of tasks. Therefore, my attendance is most important. I will contact individual instructors for details.

7. I understand that if I display serious discipline problems I will be removed from class and not allowed to return without a signed note from the program coordinator.

I have read all of the above rules and I understand them.

Student_____Date_____

Parent_____Date_____

MATHEMATICS & SCIENCE PROGRAM
PARTICIPANT'S EVALUATION

Course Dept. and Number	Name of Instructor	Date

TO: The Participants of the Lincoln Foundation Math and Science Summer Program

FROM: Larry McDonald, Dr. Bruce LaVant, & Mr. Reginald McDaniel, Sr.

We are requesting your assistance by providing us with your personal opinion of the program in the following two major areas: (1) Characteristics of the instructor's effectiveness in teaching, and (2) characteristics of the course. The purpose of this evaluation is: (1) To provide a tool in self-improvement for the instructor, and (2) to provide an exercise in critical judgment for each student. We recommend that you keep these goals in mind during your rating and interpreting in order for you to remain as objective as possible.

You are encouraged to respond, but should not feel obligated to do so. The faculty will not read the completed forms until the semester grades are in.

PART I
Teacher Evaluation

Instructions: Circle the most suitable number with **4 being excellent** and **0 being poor.** NA means not applicable to this particular course. **Please Print**

1. Makes course goals known and endeavors to achieve them.	4	3	2	1	0	NA
2. Selection of materials is suited to objectives of course.	4	3	2	1	0	NA
3. Class presentations are organized and clearly presented.	4	3	2	1	0	NA
4. Accepts questions readily and answers clearly.	4	3	2	1	0	NA
5. Appears sensitive to student's feelings and problems.	4	3	2	1	0	NA
6. Assignments are appropriate for objectives of course.	4	3	2	1	0	NA
7. Assignments are appropriated for credit received.	4	3	2	1	0	NA
8. Is available for consultation outside of class.	4	3	2	1	0	NA
9. Shows interest and enthusiasm for course.	4	3	2	1	0	NA
10. Instructor is flexible.	4	3	2	1	0	NA
11. Instructor is consistent and fair in grading.	4	3	2	1	0	NA
12. Overall rating of this instructor as a teacher.	4	3	2	1	0	NA

Please make any other comments or suggestions regarding the instructor.

Course Dept. & Number _____ Date _____

PART II
Course Evaluation

Instructions: Circle the most suitable number with **4 being excellent** and **0 being poor.** NA means not applicable to this particular course. **Please Print**

13. How much do you think you have learned about?

a. Facts and information	4	3	2	1	0	NA
b. Concepts that help to organize and interpret information gained	4	3	2	1	0	NA
c. Developing critical reasoning and analysis	4	3	2	1	0	NA

14. Rate your sources of learning for this course.

a. The instructor(s)	4	3	2	1	0	NA
b. The text(s)	4	3	2	1	0	NA
c. Classroom discussions	4	3	2	1	0	NA
d. Working in groups	4	3	2	1	0	NA
e. Library work	4	3	2	1	0	NA
f. Other assignments (explain) _____	4	3	2	1	0	NA

15. How influential has this course been?

a. General knowledge	4	3	2	1	0	NA
b. Furthering you academic goals	4	3	2	1	0	NA

16. What are the major strengths of this course?
    a. _____
    b. _____
    c. _____

17. What are the major weaknesses of this course?
    a. _____
    b. _____
    c. _____

18. What did you like most about this course? _____

19. What did you like least about this course? _____

20. Check appropriate statement(s). "I am taking this course because"

_____ Friends recommend it
_____ Faculty advisor recommend it
_____ Teacher's reputation influenced (my choice)
_____ I thought I would make a good grade
_____ It is required (for major or general education)
_____ It seemed of interest to me

21. How would you rate this course, considering all applicable qualities?
    4 – Excellent 3 – Very Good 2 – Good 1 – Fair 0 – Poor

22. Please make any other comments you or suggestions regarding this course.

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MATH AND SCIENCE PROGRAM
FACULTY SURVEY
SUMMER 2002

Assessment of Professional Development

Directions: Please rate your experience as it relates to the professional development activities during the three day training session prior to the program and throughout the program, on the following criteria, with "5" indicating you strongly agree and "1" indicating that you strongly disagree.

	Agree				Disagree
1. Content was organized to provide opportunities to learn new teaching strategies	5	4	3	2	1
2. Materials were adequately covered for understanding	5	4	3	2	1
3. There was an opportunity for collaborative learning	5	4	3	2	1
4. There was opportunity to "try" different instructional strategies	5	4	3	2	1
5. I felt adequately prepared to deliver instruction to the students	5	4	3	2	1

Assessment of Personal Instruction Strategies

Rate the degree to which you implemented the following instructional strategies during the Lincoln Foundation Mathematics & Science Program, with "5" indicating you used the strategy regularly and "1" indicating that you never used the strategy.

	Regularly				Did Not Implement
1. Activity-based approach to presenting lessons	5	4	3	2	1
2. Cooperative learning groups	5	4	3	2	1
3. Use of manipulatives	5	4	3	2	1
4. Small group work	5	4	3	2	1
5. Board work	5	4	3	2	1
6. Teacher lecture	5	4	3	2	1
7. Individual student projects	5	4	3	2	1

MATH AND SCIENCE SUMMER PROGRAM
OVERALL PROGRAM ASSESSMENT

The next section asks you about your overall satisfaction with various aspects of the Math and Science Summer Program. Rate the quality of the following Lincoln Foundation program components.

	1 = Poor				5 = Excellent
1. Student selection	1	2	3	4	5
2. Curriculum	1	2	3	4	5
3. Class size	1	2	3	4	5
4. Site Appropriateness	1	2	3	4	5
5. Length of program (#of days)	1	2	3	4	5
6. Teaching supplies	1	2	3	4	5
7. Administrative support	1	2	3	4	5
8. Professional development	1	2	3	4	5
9. Instructional support	1	2	3	4	5

Please describe what you perceive to be the strengths of the Lincoln Foundation Math & Science Program.

_____

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Please describe what you perceive to be the weaknesses of the Lincoln Foundation Math & Science Program.

_____

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_____

_____

THE LINCOLN FOUNDATION
MATH AND SCIENCE PROGRAM
PARENT SURVEY
SUMMER 2002

We would like to obtain your views about various aspects of the Math and Science Summer Program. Circle the most suitable number with "5" being strongly agree and "1" being strongly disagree.

In this program:	Agree / Disagree
1. I believe my child was encouraged to do his/her best work.	5 4 3 2 1
2. The program provided a positive learning environment for my child.	5 4 3 2 1
3. The work my child did in this program is important.	5 4 3 2 1
4. I believe my child will be prepared for high school mathematics.	5 4 3 2 1
5. The instructional methods used were very effective for my child.	5 4 3 2 1
6. My child's interests in science have increased.	5 4 3 2 1
7. My child's interest in mathematics has increased.	5 4 3 2 1
8. The quality of education provided by this program was excellent.	5 4 3 2 1

9. Additional Comments: _____

_____

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